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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,190

03/17/2008

James Bosket

5566-1002

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466

7590

08/04/2011

YOUNG & THOMPSON

209 Madison Street

Suite 500

Alexandria, VA 22314

EXAMINER

NAMAY, DANIEL ELLIOT

ART UNIT

PAPER NUMBER

3749

NOTIFICATION DATE

DELIVERY MODE

08/04/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No. 10/551,190	Applicant(s) BOSKET, JAMES	
	Examiner Daniel E. Namay	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The references cited in the Search Report EPO have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO/SB/08A and 08B form, must be filed within the set period for reply to this Office action.

Specification

2. The disclosure is objected to because of the following informalities: In Ln. 7-8 of P. 8, "various altitudes of sea level" should be either "various altitudes above sea level" or "various altitudes relative to sea level", or similar language.

Appropriate correction is required.

Note: The prior art relied upon in the following office action is as follows:

- | | |
|-------------------------------|---------------------|
| - Kemp et al, US #1311235 | [Kemp ('235)] |
| - Poe et al, US #2002/0015930 | [Poe ('930)] |
| - Van Rooyen, GB #1300145 | [Van Rooyen ('145)] |

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9, 12-15, 19 & 20 are rejected under 35 U.S.C. 102(b) as being anticipated by **Kemp ('235)**.

5. In Re Claim 9, **Kemp ('235)** discloses: A fuel burning device (**Fig. 1**), comprising:

- A. a tubular combustion cylinder open at opposing first and second ends (**#16 - Fig. 1-3; Fig. 17 - Fig. 2, 3; Both shown open at both ends**);

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- B. a fuel inlet pipe (**Comprising Tip #10 & Pipe #11**) having a first end extending through said first end of said combustion cylinder partially into the combustion cylinder (**End of Tip #10; P. 1, Ln. 64-69**) and a second end extending outside of said combustion cylinder (**End connected to elbow**);
 - C. a burner head connected to said first end of said fuel inlet pipe (**#10**); &
 - D. an orifice connected between said, burner head and said first end of said fuel inlet pipe (**The opening between Pipe #11 & Tip #10 constitutes an orifice**).
 - E. With respect to the recitation "said burner head being structured and arranged at said first end of said combustion cylinder so that when fuel is burned, a naturally aspirated unregulated, turbulent forced air effect develops so that combusted fuel discharged at said second end of said combustion cylinder has reduced CO and NO_x", it has been held that the recitation that an element is "adapted to" or "configured to", or "structured to", perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.
6. In Re Claim 12, **Kemp ('235)** discloses the structure recited in the claim, including a burner head (**#10**) positioned in a combustion cylinder (**#16 - Fig. 1-3; Fig. 17 - Fig. 2, 3; Both shown open at both ends**) nearer a first open end of the cylinder surrounding than a second open end (**P. 1, Ln. 64-69**, & a naturally aspirated, unregulated, turbulent forced air effect (**Arrows shown between Burner #10 & Cylinder #16; P. 2, Ln. 6-29**) through inlet slots (**Space between Burner #10 & Cylinder #16**), as well as igniting the air/fuel mixture & discharging the combusted fuel from said second end of said cylinder (**P. 1, Ln. 69-77**). Therefore, since the structure is fully disclosed, the burner of **Kemp ('235)** would inherently be capable of performing the recited method of reducing CO & NO_x emissions by using the forced air effect to increase a pressure at air inlets of said burner head to reduce CO and NO_x emissions due to the increased pressure.

7. In Re Claim 13, **Kemp ('235)** discloses: an orifice adjacent said burner head (**Opening between Pipe #11 & Tip #10**). With respect to the orifice sized to produce about 25,000 Btu at 11 inches water column supply pressure for propane gas, it would have been an obvious matter of design choice to size the burner of **Kemp ('235)** for an appropriate output capacity since the applicant has not disclosed that a 25 MBH output solves a particular problem or is for a particular purpose and the burner of **Kemp ('235)** would function equally well in either configuration.

8. In Re Claim 14, **Kemp ('235)** discloses the claimed invention except for adjusting a bracket connected on an exterior surface of the combustion cylinder. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide an adjustable bracket for the burner head, since it has been held that the provision of adjustability, where needed, involves routine skill in the art . In re Stevens, *101 USPQ 284 (CCPA 1954)*. Please note that in the instant application, Ln. 6-17 of P. 5, applicant has not disclosed any new or unexpected results / criticality for the claimed limitations.

9. In Re Claim 15, **Kemp ('235)** discloses: adjusting a choke adjuster disk connected through a choke adjuster shaft to a fuel inlet area of said burner head (**P. 1, Ln. 56-63**) to create a venturi effect in the combustion cylinder, so as to slow down a speed of combustion gas through the combustion cylinder to still further reduce Co and NOx emissions (**Considered by Examiner as intended use language**).

10. In Re Claim 19, **Kemp ('235)** discloses: inserting a hollow cylindrical air guide (**#16 - Fig. 2, 3**) into said combustion cylinder (**#17 - Fig. 2, 3**), between said burner head and said inner wall of the combustion cylinder (**Fig. 2, 3**), so as to define a secondary area of combustion between an inner wall of said air guide and said burner head and creating a tertiary area of combustion between an outer wall of said air guide and, said inner wall of said combustion cylinder (**This is considered by the Examiner as intended use language. The defined area is capable of being use as a secondary combustion zone to ignite unburned fuel from emanating from the first combustion zone within Cylinder #16**).

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11. In Re Claim 20, with respect to: "creating vortex air currents by placing air vanes into the air guide, said vortex air currents substantially eliminating CO emission and further reducing NOx emissions", Examiner takes Official Notice that guides, fins or similar apparatus for creating a vortex in a combustion chamber were well known in the art at the time of the invention to increase and improve mixing of comburent & combustion fluids in a combustion chamber to facilitate a more efficient & complete combustion.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-8, 10 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kemp ('235)** in view of **Poe ('930)** & **Van Rooyen ('145)**, & Claims 10 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kemp ('235)**, as applied to Claim 12 above, in view of **Poe ('930)** & of **Van Rooyen ('145)**

14. In Re Claim 1, **Kemp ('235)** discloses: A fuel burning device (**Fig. 1**), comprising:

- A. a tubular combustion cylinder open at opposing first and second ends (**#16 - Fig. 1-3; Fig. 17 - Fig. 2, 3; Both shown open at both ends**);
- B. a fuel inlet pipe (**Comprising Tip #10 & Pipe #11**) having a first end extending through said first end of said combustion cylinder partially into the combustion cylinder (**End of Tip #10; P. 1, Ln. 64-69**) and a second end extending outside of said combustion cylinder (**End connected to elbow**);
- C. a hollow air mixing body (**Tip #10 constitutes a hollow body**) having a proximal end in communication with said first end of said fuel inlet pipe (**Tip #10 is shown connected to Fuel Pipe #11**), a distal end of said air mixing body having a hemispherical nozzle cap with a plurality of slots therethrough;

&

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- D. an orifice connected between said proximal end of said air mixing body and said first end of said fuel inlet pipe (**The opening between Pipe #11 & Tip #10 constitutes an orifice**).
- E. However, **Kemp ('235)** fails to disclose: the nozzle being hemispherical with discharge slots therein.
 - i. Nevertheless, **Poe ('930)** discloses the burner tip (**#54, 154, 254, 354**) being hemispherical (**Fig. 2, 8-12, 16**) with discharge slots (**#110**) in the burner tip.
 - ii. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the hemispherical head of **Poe ('930)** in the burner of **Kemp ('235)** to more evenly distribute the fluid throughout the combustion chamber.
- F. Further, **Kemp ('235)** fails to disclose the mixing body having a plurality of air inlet holes.
 - i. Nevertheless, **Van Rooyen ('145)** discloses air inlet slots (**#54**) in a mixing body of a burner head (**#16**).
 - ii. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the air inlet slots of **Van Rooyen ('145)** into the burner of **Kemp ('235)** to avoid flame dispersion at lower temperature ranges (**P. 2, Ln. 54-99**).
- G. With respect to the recitation "said air mixing body being structured and arranged at said first end of said combustion cylinder so that when fuel is burned, a naturally aspirated unregulated, turbulent forced air effect develops that increases the pressure at the plurality of air inlet holes so as to reduce CO and Nox emissions from the combusted fuel discharged at said second end of said combustion chamber", it has been held that the recitation that an element is "adapted to" or "configured to", or "structured to", perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.

15. In Re Claim 2, **Kemp ('235)** discloses: a primary ignition of said fuel at said slots of said nozzle (**P. 1, Ln. 69-77**) that creates a circular pattern of flame adjacent to an inner wall of said combustion cylinder (**The combustion gases would inherently expand to the occupy full cross-sectional area of the cylinder, i.e. the combustion gases would for a circular pattern**).

16. In Re Claim 3, **Kemp ('235)** discloses the claimed invention except for: a positioning bracket connected to an exterior surface of said combustion cylinder and to said second end of said fuel inlet pipe, said bracket being adjustable to move said air mixing body toward said second end of said combustion cylinder. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide an adjustable bracket for the burner head, since it has been held that the provision of adjustability, where needed, involves routine skill in the art. In re Stevens, *101 USPQ 284 (CCPA 1954)*. Please note that in the instant application, Ln. 6-17 of P. 5, applicant has not disclosed any new or unexpected results / criticality for the claimed limitations.

17. In Re Claim 4, **Kemp ('235)** discloses a choke adjuster (**Valve Handle #13 on Cock #12**) being adjustable to slow the speed of combustion gas through the combustion cylinder (**P. 1, Ln. 56-63**) between the orifice (**Opening between Pipe #11 & Tip #10**) & fuel inlet pipe (**Pipe shown at inlet side of Valve #12**).

18. In Re Claim 5, **Poe ('930)** further discloses: a turbulence disk connected to an exterior surface of said air mixing body (**#43 - Fig. 2**), said turbulence disk creating a first zone of turbulence above the turbulence disk in a direction of combustion gas exit and a different second zone of turbulence below the turbulence ring (**Para. 47**) so as to create negative pressure at said plurality of nozzle cap slots, so that CO is practically eliminated and NOx emission is reduced, when the fuel is combusted (**This is considered by the Examiner as intended use language, which does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations**).

19. In Re Claim 6, the recitation: "said second zone of turbulence has a curvilinear retrogradation pattern", is considered by the Examiner to be functional language, which

is not a positive limitation but only requires the ability to so perform, and does not constitute a limitation in any patentable sense.

20. In Re Claim 7, **Kemp ('235)** discloses: a hollow cylindrical air guide connected at a first extremity to said second end of said fuel inlet pipe (**#16 - Fig. 2, 3**), a second extremity of said air guide having an air guide aperture (**Outlet of Cylinder #16 into Outer Cylinder #17**), an exterior surface of said mixing device and an interior surface of said air guide defining an area of secondary combustion (**This is considered by the Examiner as intended use language. The defined area is capable of being use as a secondary combustion zone to ignite unburned fuel from emanating from the first combustion zone within Cylinder #16**).

21. In Re Claim 8, with respect to: "plural vortex fins projecting from said air guide at said second extremity and toward said aperture so as to form a respective vortex slot between an adjacent two of said plural vortex fins, a force of naturally aspirated rising air through said vortex slot creating helicoidal vortex air currents in said area of secondary combustion", Examiner takes Official Notice that guides, fins or similar apparatus for creating a vortex in a combustion chamber were well known in the art at the time of the invention to increase and improve mixing of comburent & combustion fluids in a combustion chamber to facilitate a more efficient & complete combustion.

22. In Re Claims 10 & 11, **Kemp ('235)** discloses all aspects of the claimed invention as discussed in Claim 9 above, including a hollow air mixing body (**Tip #10 constitutes a hollow body**) having a proximal end in communication with said first end of said fuel inlet pipe (**Tip #10 is shown connected to Fuel Pipe #11**).

A. However, with respect to Claim 10, **Kemp ('235)** fails to disclose: the nozzle being hemispherical with a plurality of slots therethrough / [Cl. 11: .

- i. Nevertheless, **Poe ('930)** discloses the burner tip (**#54, 154, 254, 354**) being hemispherical (**Fig. 2, 8-12, 16**) with discharge slots (**#110**) in the burner tip.
- ii. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the hemispherical head of **Poe ('930)** in the burner

of **Kemp ('235)** to more evenly distribute the fluid throughout the combustion chamber.

- B. Further, with respect to Claim 11, **Kemp ('235)** fails to disclose: a conical nozzle cap with a plurality of holes therethrough, said nozzle cap having a lip which protrudes from said air mixing body.
- i. Nevertheless, **Poe ('930)** discloses the burner tip (**#54, 154, 254, 354**) being conical (**Fig. 12: Tip #354 appears conical in shape**) with discharge holes (**Slots #110 are holes / openings**) in the burner tip, with a protruding lip (**#43 - Fig. 2**).
- ii. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the hemispherical head of **Poe ('930)** in the burner of **Kemp ('235)** to more evenly distribute the fluid throughout the combustion chamber.

23. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kemp ('235)**, as applied to Claim 15 above, in view of **Poe ('930)**.

24. In Re Claims 16 & 17, **Kemp ('235)** discloses all aspects of the claimed invention as discussed above, but fails to disclose: attaching a turbulence disk to an exterior surface of said burner head to create two different zones of air pressure / [Cl. 17: wherein a first one of said zones is above the turbulence disk in a direction of combusted fuel discharge and a second one of said zones is below the turbulence ring].

- A. Nevertheless, discloses **Poe ('930)** discloses a turbulence disk (**#43 - Fig. 2**) connected to an exterior surface of a air mixing body (**#54**) of a burner (**#20**).
- B. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the turbulence disk of **Poe ('930)** into the burner of **Kemp ('235)** to "facilitate the intermixing operation" (**Para. 47**).
- C. NOTE: The recitations: "to create two different zones of air pressure" & "wherein a first one of said zones is above the turbulence disk in a direction of combusted fuel discharge and a second one of said zones is below the

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turbulence ring", are considered by the Examiner to be intended use & functional language, respectively.

25. In Re Claim 18, **Poe ('930)** further discloses: plural slots in the first zone (**#110**).

NOTE: The recitation: "so that a pattern of turbulence with a curvilinear retrogradation develops in a secondary combustion air, upstream, in said direction of combusted fuel discharge, of an ignition area of said plural slots between said exterior surface of said burner head and an inner wall of said combustion cylinder", is considered by the Examiner as intended use language.

Conclusion

26. The prior art made of record and not relied upon and is considered pertinent to applicant's disclosure is listed in the attached form PTO-892.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel E. Namay whose telephone number is (571)270-5725. The examiner can normally be reached on Mon - Fri (Alt Fri) 7:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel E. Namay/
Examiner, Art Unit 3749

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/STEVEN B. MCALLISTER/

Supervisory Patent Examiner, Art Unit 3749